

REMARKS/ARGUMENTS

This paper is submitted responsive to the office action mailed April 18, 2008. Reconsideration of the application in light of the accompanying remarks and amendments is respectfully requested.

In the aforesaid action, the Examiner rejected independent claim 13 as anticipated by US 6,300,398 to Jialanella (hereafter "Jialanella"). The Examiner also rejected dependent claim 30 as obvious based upon a combination of Jialanella and the Baker-Hughes web site publication (hereafter "Baker-Hughes").

By the present paper, claim 30 has been cancelled without prejudice and written into independent claim 13, and new claim 52 has been added.

The feature of added claim 52 is disclosed in the specification on page 4, third paragraph, as follows: "Advantageous synergistic effects as a result of the heterocystallization of P(i) and P(j) occur especially if $DPs(P(i))$ is approximately comparable to $DP(P(j))$, i.e. preferably $0.1 \times DP(P(j)) < DPs(P(i)) < 10 \times DP(P(j))$, more preferably, $0.3 \times DP(P(j)) < DPs(P(i)) < 7 \times DP(P(j))$, most preferably $0.5 DP(P(j)) < DPs(P(i)) < 5 \times DP(P(j))$." Thus, this added claim is fully supported by the specification and does not constitute the addition of new matter.

Concerning amended claim 13, the examiner acknowledges novelty of this claim, but argues that Jialanella already discloses a degree of long chain branches in a range from 0.01 - 3 per 1000 which encompasses the degree of branching claimed by the applicant for first polymer component. In fact, this only refers to long chain branches. Since Jialanella discloses an interpolymer of ethylene and 1-octene as the first polymer there are additional short chain branches present. As can be seen from column 12, lines 47 - 54 of Jialanella, ethylene polymers with a density of 0.855 - 0.910 g/cm³ are used as the first polymer. Please refer to table 5 of Jialanella.

All used polymers with the above mentioned density (examples A1 - F1, J1 - N1, Q1 and R1) have an olefin ratio of at least 7.3 %. Since each olefin (= 1-octene) unit results in one short chain branch the degree of branching of first polymers according to Jialanella is in fact at least 0.073. This does not fulfill the requirement of new claim 13 that $P(i)$ has a degree of branching $< 3 \times 10^{-2}$. To further substantiate this argumentation, please find en-closed one page from A. J. Peacock, Handbook of Polyethylene. In paragraph d it is mentioned that polyethylenes with densities in the range of 0.86 - 0.90 g/cm³, i.e. polyethylenes according to Jialanella, which are called VLDPE or ULDPE typically have separation of branches of 7 - 25 backbone carbon atoms. This results in a degree of branching of $1/25 - 1/7 = 0.04 - 0.14$, which corresponds well to the above arguments. Since Jialanella does not disclose or suggest using a first polymer with a degree of branching $< 3 \times 10^{-2}$ the subject matter of the amended claim 13 is not only novel over Jialanella but is also not obvious. It is further submitted that Baker-Hughes likewise does not disclose or suggest the subject matter of claim 30 which was incorporated into claim 13.

Concerning amended claim 49, please refer to figures 1 - 3 of the above mentioned patent application. While use of different types of mixing systems will normally not result in differences in E-modulus, yield stress and elongation at break it has been shown that use of a single screw extruder or a twin screw extruder will result in an improvement of said properties when compared to a polymer prepared using a Brabender kneader. According to Jialanella, a Haake mixer is used, which is similar to a Brabender kneader. If necessary the inventor of the above mentioned patent application, Mr. Rolf Müller, is prepared to testify said similarity in an Affidavit. Since there is no suggestion in Jialanella that use of a single screw extruder or a twin screw extruder will result in improved E-modulus,

yield stress and elongation at break of the produced polymer, claim 49 adds further inventive features to claim 13.

Concerning new claim 52 it is known from claim 13 that $20 < DP(P(j)) < 500$. When combined with the feature $0.5 \times DP(P(j)) < DPs(P(i)) < 5 \times DP(P(j))$ of claim 52 the minimum degree of polymerization of crystallizable sequences $DPs(P(i))$ is $20 \times 0.5 = 10$. According to page 3, second paragraph of the description, "the degree of polymerization is understood as the number of the smallest repeating unit and in polyethylene (PE) this is the unit (CH₂)⁻". Therefore in the case of PE the minimum molecular weight of $DPs(P(i))$ is $10 \times 14 \text{ g/mol} = 140 \text{ g/mol}$. Please refer to figure 7 of the above mentioned patent application. When extrapolating the graph for PE it can be seen that PE with MW = 140 g/mol shall have a melting point of ~ 95°C. Therefore a melting point of at least 95°C of the first polymer is required according to the invention, if the first polymer is a PE homopolymer or interpolymers. However, all PE interpolymers in examples A1 - F1, J1 - N1, Q1, R1 of Jialanella have melting points of 91°C or less. Since all PE interpolymers with melting points above 95°C mentioned in Jialanella (examples G1, H1, O1 and P1) have densities, which do not fulfill the above mentioned requirements to be used as the first polymer according to Jialanella, it may be concluded that Jialanella teaches away from using such polymers as the first polymer in a polymer composition according to Jialanella. Therefore, claim 52 adds further inventive features to claim 13.

Concerning the provisional rejections for double patenting, it is believed that the claims in each application have been amended in a way which resolves this issue. If, however, it is believed that double patenting remains an issue, the filing of a terminal disclaimer will be considered.

An earnest and thorough effort has been made by the undersigned

to address all issues in this application and to place the application in condition for allowance. If, upon consideration of this response, the Examiner is of the opinion that issues remain which can be addressed by telephone interview, the Examiner is invited to telephone the undersigned to discuss same.

A request for three month extension of time accompanies this paper, along with an authorization of the Deposit Account for the fee in connection with same. It is believed that no additional fee is due. If, however, any such fee or fee deficiency is due, please charge same to Deposit Account 02-0184.

Respectfully submitted,
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Date: October 20, 2008